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JUN 29 2001

TECH CENTER 1600, 2900

SEQUENCE LISTING

<110> Gijzen, Mark
<120> Soybean Seed Coat Peroxidase Structural Gene And Regulatory Region

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<140> US 08/939,905

<141> 1996-09-30

<150> US 08/723,414

<151> 1996-09-30

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caatactgct	acaatcgtaa gcgaacaaca agcttttcca aataacaact ctctaagggg 300
tttgatggt	gtgaatcaga tcaaaactgc tgtagaaaagt gcttgccta acacagtttc 360
ttgtgctgat	attcttgcac ttgctcaagc atcctctgtt ctggcacaag gtcctagttg 420
gacggttcct	ttaggaagaa gggatggttt aaccgcaaac cgaacacttg caaatcaaaa 480
tcttcgggct	ccattcaatt ccttggatca ccttaaactg catttgactg ctcaaggcct 540
cattactcct	gttctagttg cctctcggg tgctcataca tttggaagag ctcatgccc 600
acaatttggt	agtcgattgt acaacttcag cagtactgga agtcccgatc caactcttaa 660
cacaacttac	ttacaacaac tgcgcacaa atgtcccaat ggtggacctg gcacaaacct 720
taccaatttc	gatccaacga ctcttgataa atttgacaag aactattact ccaatcttca 780
agtgaaaaag	ggtttgctcc aaagtgatca agagttgttc tcaacttctg gtgcagatac 840
cattagcatt	gtcgacaaat tcagcaccca tcaaaatgct ttctttgaga gctttaaggc 900
tgcaatgatt	aaaatgggca atattgggtg gctaacaggg acaaaaggag agattagaaa 960
acaatgcaac	tttgtgaact caaattctgc agaactagat ttagccacca tagcatccat 1020
agtagaatca	ttagaggatg gaattgctag tgtaatataa ataaattagc gaaaatgcac 1080
ttattgaaat	cttgtgacta gatcccacta ataaataagt tataactagg cacatttcat 1140
gtcacttgaa	atcctatgcc ttgtatatta gaggacgtgt tcttcttggt attatactat 1200

<210> 14
 <211> 1200
 <212> DNA
 <213> Medicago sativa

<400> 14
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 accctttttca aatgcacaac tagatccttc attttacaac agtacatgtt ctaatcttga 120
 ttcaatcgta cgtgggtgtgc tcacaaatgt ttcacaatct gatcccagaa tgcttggtag 180
 tctcatcagg ctacattttc atgactgttt tgttcaagggt tgcgatgcct cgattttgct 240
 gaacgatacg gctacaatag tgagcgagca aagtgcacca ccaaataaca actccataag 300
 aggtttggat gtgataaacc agatcaaaac agcgggtggaa aatgcttgtc ctaacacagt 360
 ttcttgtgct gatattcttg ctctttctgc tgaaatatca tctgatctgg caaatgggtcc 420
 tacttggcaa gttccattag gaagaaggga tagtttgaca gcaaataatt cccttgcagc 480
 tcaaaatctt cctgccccca ctttcaacct tactcgacta aaatctaact ttgataatca 540
 aaacctcagt actactgac tagttgcact ctcaggtggc catacaattg gaagagggtca 600
 atgcagattt ttcgttgatc gattatacaa tttcagcaac actggaaacc ccgattcaac 660
 tcttaacacg acctatttac aaacattgca agcaatatgt cccaatgggtg gacctggtac 720
 aaacctaaacc gatttggacc caaccacacc agatacattt gactccaact actactccaa 780
 tctccaagtt ggaaagggtc tgtttcagag tgaccaagag cttttttcca gaaatgggtc 840
 tgacactatt tctattgtca atagtttcgc caataatcaa actctcttct ttgaaaattt 900
 tgtagcctca atgataaaaa tgggtaatat tggagtttta actggatctc aagggtgaaat 960
 tagaacacag tgtaatgctg tgaatgggaa ttcttctgga ttggctactg tagtcaccaa 1020
 agaatcatca gaagatggaa tggctagctc attctaaata taagcttgga aaatattgaa 1080
 gaggttctat aattttgtgc atacatatat ggtatgtgca tgtgggtgat tatgtttttg 1140
 ttatgttctt caagttgatc agggactgta gaagctccct aataatattt gtgtcaaagt 1200

<210> 15
 <211> 283
 <212> PRT
 <213> Glycine max

<400> 15
 Phe His Asp Cys Phe Val Gln Gly Cys Asp Gly Ser Val Leu Leu Asn
 1 5 10 15
 Asn Thr Asp Thr Ile Glu Ser Glu Gln Asp Ala Leu Pro Asn Ile Asn
 20 25 30
 Ser Ile Arg Gly Leu Asp Val Val Asn Asp Ile Lys Thr Ala Val Glu
 35 40 45
 Asn Ser Cys Pro Asp Thr Val Ser Cys Ala Asp Ile Leu Ala Ile Ala
 50 55 60

Ala Glu Ile Ala Ser Val Ala Gly Arg Arg Ser Gly Trp Pro Val Pro
 65 70 75 80
 Leu Gly Arg Arg Asp Ser Leu Thr Ala Asn Arg Thr Leu Ala Asn Gln
 85 90 95
 Asn Leu Pro Ala Pro Phe Phe Asn Leu Thr Gln Leu Lys Ala Ser Phe
 100 105 110
 Ala Val Gln Gly Leu Asn Thr Leu Asp Leu Val Thr Leu Ser Gly Gly
 115 120 125
 His Thr Ser Gly Arg Ala Arg Cys Ser Thr Phe Ile Asn Arg Leu Tyr
 130 135 140
 Asn Phe Ser Asn Thr Gly Leu Ile His Leu Asp Thr Thr Tyr Leu Glu
 145 150 155 160
 Val Leu Arg Ala Arg Cys Pro Gln Asn Ala Thr Gly Asp Asn Leu Thr
 165 170 175
 Asn Leu Asp Leu Ser Thr Pro Asp Gln Phe Asp Asn Arg Tyr Tyr Ser
 180 185 190
 Asn Leu Leu Gln Leu Asn Gly Leu Leu Gln Ser Asp Gln Glu Arg Phe
 195 200 205
 Ser Thr Pro Gly Ala Asp Thr Ile Pro Leu Ser Ile Ala Ser Ala Asn
 210 215 220
 Gln Asn Thr Phe Phe Ser Asn Phe Arg Val Ser Met Ile Lys Met Gly
 225 230 235 240
 Asn Ile Gly Val Leu Thr Gly Asp Glu Gly Glu Ile Arg Leu Gln Cys
 245 250 255
 Asn Phe Val Asn Gly Asp Ser Phe Gly Leu Ala Ser Val Ala Ser Lys
 260 265 270
 Asp Ala Lys Gln Lys Leu Val Ala Gln Ser Lys
 275 280

<210> 16
 <211> 355
 <212> PRT
 <213> Medicago sativa

<400> 16

Met Asn Ser Leu Arg Ala Val Ala Ile Ala Leu Cys Cys Ile Val Val
 1 5 10 15
 Val Leu Gly Gly Leu Pro Phe Ser Ser Asn Ala Gln Leu Asp Pro Ser
 20 25 30
 Phe Tyr Arg Asn Thr Cys Pro Asn Val Ser Ser Ile Val Arg Glu Val
 35 40 45
 Ile Arg Ser Val Ser Lys Lys Asp Pro Arg Met Leu Ala Ser Leu Val
 50 55 60
 Arg Leu His Phe His Asp Cys Phe Val Gln Gly Cys Asp Ala Ser Val
 65 70 75 80
 Leu Leu Asn Lys Thr Asp Thr Val Val Ser Glu Gln Asp Ala Phe Pro
 85 90 95

Asn Arg Asn Ser Leu Arg Gly Leu Asp Val Val Asn Gln Ile Lys Thr
 100 105 110
 Ala Val Glu Lys Ala Cys Pro Asn Thr Val Ser Cys Ala Asp Ile Leu
 115 120 125
 Ala Leu Ser Ala Glu Leu Ser Ser Thr Leu Ala Asp Gly Pro Asp Trp
 130 135 140
 Lys Val Pro Leu Gly Arg Arg Asp Gly Leu Thr Ala Asn Gln Leu Leu
 145 150 155 160
 Ala Asn Gln Asn Leu Pro Ala Pro Phe Asn Thr Thr Asp Gln Leu Lys
 165 170 175
 Ala Ala Phe Ala Ala Gln Gly Leu Asp Thr Thr Asp Leu Val Ala Leu
 180 185 190
 Ser Gly Ala His Thr Phe Gly Arg Ala His Cys Ser Leu Phe Val Ser
 195 200 205
 Arg Leu Tyr Asn Phe Ser Gly Thr Gly Ser Pro Asp Pro Thr Leu Asn
 210 215 220
 Thr Thr Tyr Leu Gln Gln Leu Arg Thr Ile Cys Pro Asn Gly Gly Pro
 225 230 235 240
 Gly Thr Asn Leu Thr Asn Phe Asp Pro Thr Thr Pro Asp Lys Phe Asp
 245 250 255
 Lys Asn Tyr Tyr Ser Asn Leu Gln Val Lys Lys Gly Leu Leu Gln Ser
 260 265 270
 Asp Gln Glu Leu Phe Ser Thr Ser Gly Ser Asp Thr Ile Ser Ile Val
 275 280 285
 Asn Lys Phe Ala Thr Asp Gln Lys Ala Phe Phe Glu Ser Phe Arg Ala
 290 295 300
 Ala Met Ile Lys Met Gly Asn Ile Gly Val Leu Thr Gly Asn Gln Gly
 305 310 315 320
 Glu Ile Arg Lys Gln Cys Asn Phe Val Asn Ser Lys Ser Ala Glu Leu
 325 330 335
 Gly Leu Ile Asn Val Ala Ser Ala Asp Ser Ser Glu Glu Gly Met Val
 340 345 350
 Ser Ser Met
 355
 <210> 17
 <211> 358
 <212> PRT
 <213> Medicago sativa
 <400> 17
 Met Asn Ser Leu Ala Thr Ser Met Trp Cys Val Val Leu Leu Val Val
 1 5 10 15
 Leu Gly Gly Leu Pro Phe Ser Ser Asp Ala Gln Leu Ser Pro Thr Phe
 20 25 30
 Tyr Ser Lys Thr Cys Pro Thr Val Ser Ser Ile Val Ser Asn Val Leu
 35 40 45

Thr Asn Val Ser Lys Thr Asp Pro Arg Met Leu Ala Ser Leu Val Arg
 50 55 60
 Leu His Phe His Asp Cys Phe Val Leu Gly Cys Asp Ala Ser Val Leu
 65 70 75 80
 Leu Asn Asn Thr Ala Thr Ile Val Ser Glu Gln Gln Ala Phe Pro Asn
 85 90 95
 Asn Asn Ser Leu Arg Gly Leu Asp Val Val Asn Gln Ile Lys Leu Ala
 100 105 110
 Val Glu Val Pro Cys Pro Asn Thr Val Ser Cys Ala Asp Ile Leu Ala
 115 120 125
 Leu Ala Ala Gln Ala Ser Ser Val Leu Ala Gln Gly Pro Ser Trp Thr
 130 135 140
 Val Pro Leu Gly Arg Arg Asp Gly Leu Thr Ala Asn Arg Thr Leu Ala
 145 150 155 160
 Asn Gln Asn Leu Pro Ala Pro Phe Asn Ser Leu Asp Gln Leu Lys Ala
 165 170 175
 Ala Phe Thr Ala Gln Gly Leu Asn Thr Thr Asp Leu Val Ala Leu Ser
 180 185 190
 Gly Ala His Thr Phe Gly Arg Ala His Cys Ala Gln Phe Val Ser Arg
 195 200 205
 Leu Tyr Asn Phe Ser Ser Thr Gly Ser Pro Asp Pro Thr Leu Asn Thr
 210 215 220
 Thr Tyr Leu Gln Gln Leu Arg Thr Ile Cys Pro Asn Gly Gly Pro Gly
 225 230 235 240
 Thr Asn Leu Thr Asn Phe Asp Pro Thr Thr Pro Asp Lys Phe Asp Lys
 245 250 255
 Asn Tyr Tyr Ser Asn Leu Gln Val Lys Lys Gly Leu Leu Gln Ser Asp
 260 265 270
 Gln Glu Leu Phe Ser Thr Ser Gly Ala Asp Thr Ile Ser Ile Val Asn
 275 280 285
 Lys Phe Ser Thr Asp Gln Asn Ala Phe Phe Glu Ser Phe Lys Ala Ala
 290 295 300
 Met Ile Lys Met Gly Asn Ile Gly Val Leu Thr Gly Thr Lys Gly Glu
 305 310 315 320
 Ile Arg Lys Gln Cys Asn Phe Val Asn Phe Val Asn Ser Asn Ser Ala
 325 330 335
 Glu Leu Asp Leu Ala Thr Ile Ala Ser Ile Val Glu Ser Leu Glu Asp
 340 345 350
 Gly Ile Ala Ser Val Ile
 355

<210> 18
 <211> 347
 <212> PRT
 <213> Medicago sativa

<400> 18

Met	Trp	Cys	Val	Val	Leu	Leu	Val	Val	Leu	Gly	Gly	Leu	Pro	Phe	Ser	1	5	10	15
Ser	Asp	Ala	Gln	Leu	Ser	Pro	Thr	Phe	Tyr	Ser	Lys	Thr	Cys	Pro	Thr	20	25	30	
Val	Ser	Ser	Ile	Val	Ser	Asn	Val	Leu	Thr	Asn	Val	Ser	Lys	Thr	Asp	35	40	45	
Pro	Arg	Met	Leu	Ala	Ser	Leu	Val	Arg	Leu	His	Phe	His	Asp	Cys	Phe	50	55	60	
Val	Leu	Gly	Cys	Asp	Ala	Ser	Val	Leu	Leu	Asn	Asn	Thr	Ala	Thr	Ile	65	70	75	80
Val	Ser	Glu	Gln	Gln	Ala	Phe	Pro	Asn	Asn	Asn	Ser	Leu	Arg	Gly	Leu	85	90	95	
Asp	Val	Val	Asn	Gln	Ile	Lys	Thr	Ala	Val	Glu	Ser	Ala	Cys	Pro	Asn	100	105	110	
Thr	Val	Ser	Cys	Ala	Asp	Ile	Leu	Ala	Leu	Ala	Gln	Ala	Ser	Ser	Val	115	120	125	
Leu	Ala	Gln	Gly	Pro	Ser	Trp	Thr	Val	Pro	Leu	Gly	Arg	Arg	Asp	Gly	130	135	140	
Leu	Thr	Ala	Asn	Arg	Thr	Leu	Ala	Asn	Gln	Asn	Leu	Pro	Ala	Pro	Phe	145	150	155	160
Asn	Ser	Leu	Asp	His	Leu	Lys	Leu	His	Leu	Thr	Ala	Gln	Gly	Leu	Ile	165	170	175	
Thr	Pro	Val	Leu	Val	Ala	Leu	Ser	Gly	Ala	His	Thr	Phe	Gly	Arg	Ala	180	185	190	
His	Cys	Ala	Gln	Phe	Val	Ser	Arg	Leu	Tyr	Asn	Phe	Ser	Ser	Thr	Gly	195	200	205	
Ser	Pro	Asp	Pro	Thr	Leu	Asn	Thr	Thr	Tyr	Leu	Gln	Gln	Leu	Arg	Thr	210	215	220	
Ile	Cys	Pro	Asn	Gly	Gly	Pro	Gly	Thr	Asn	Leu	Thr	Asn	Phe	Asp	Pro	225	230	235	240
Thr	Thr	Pro	Asp	Lys	Phe	Asp	Lys	Asn	Tyr	Tyr	Ser	Asn	Leu	Gln	Val	245	250	255	
Lys	Lys	Gly	Leu	Leu	Gln	Ser	Asp	Gln	Glu	Leu	Phe	Ser	Thr	Ser	Gly	260	265	270	
Ala	Asp	Thr	Ile	Ser	Ile	Val	Asp	Lys	Phe	Ser	Thr	Asp	Gln	Asn	Ala	275	280	285	
Phe	Phe	Glu	Ser	Phe	Lys	Ala	Ala	Met	Ile	Lys	Met	Gly	Asn	Ile	Gly	290	295	300	
Val	Leu	Thr	Gly	Thr	Lys	Gly	Glu	Ile	Arg	Lys	Gln	Cys	Asn	Phe	Val	305	310	315	320
Asn	Ser	Asn	Ser	Ala	Glu	Leu	Asp	Leu	Ala	Thr	Ile	Ala	Ser	Ile	Val	325	330	335	

Glu Ser Leu Glu Asp Gly Ile Ala Ser Val Ile
 340 345

<210> 19
 <211> 351
 <212> PRT
 <213> Medicago sativa

<400> 19

Met Leu Gly Leu Ser Ala Thr Ala Phe Cys Cys Met Val Phe Val Leu
 1 5 10 15
 Ile Gly Gly Val Pro Phe Ser Asn Ala Gln Leu Asp Pro Ser Phe Tyr
 20 25 30
 Asn Ser Thr Cys Ser Asn Leu Asp Ser Ile Val Arg Gly Val Leu Thr
 35 40 45
 Asn Val Ser Gln Ser Asp Pro Arg Met Leu Gly Ser Leu Ile Arg Leu
 50 55 60
 His Phe His Asp Cys Phe Val Gln Gly Cys Asp Ala Ser Ile Leu Leu
 65 70 75 80
 Asn Asp Thr Ala Thr Ile Val Ser Glu Gln Ser Ala Pro Pro Asn Asn
 85 90 95
 Asn Ser Ile Arg Gly Leu Asp Val Ile Asn Gln Ile Lys Thr Ala Val
 100 105 110
 Glu Asn Ala Cys Pro Asn Thr Val Ser Cys Ala Asp Ile Leu Ala Leu
 115 120 125
 Ser Ala Glu Ile Ser Ser Asp Leu Ala Asn Gly Pro Thr Trp Gln Val
 130 135 140
 Pro Leu Gly Arg Arg Asp Ser Leu Thr Ala Asn Asn Ser Leu Ala Ala
 145 150 155 160
 Gln Asn Leu Pro Ala Pro Thr Phe Asn Leu Thr Arg Leu Lys Ser Asn
 165 170 175
 Phe Asp Asn Gln Asn Leu Ser Thr Thr Asp Leu Val Ala Leu Ser Gly
 180 185 190
 Gly His Thr Ile Gly Arg Gly Gln Cys Arg Phe Phe Val Asp Arg Leu
 195 200 205
 Tyr Asn Phe Ser Asn Thr Gly Asn Pro Asp Ser Thr Leu Asn Thr Thr
 210 215 220
 Tyr Leu Gln Thr Leu Gln Ala Ile Cys Pro Asn Gly Gly Pro Gly Thr
 225 230 235 240
 Asn Leu Thr Asp Leu Asp Pro Thr Thr Pro Asp Thr Phe Asp Ser Asn
 245 250 255
 Tyr Tyr Ser Asn Leu Gln Val Gly Lys Gly Leu Phe Gln Ser Asp Gln
 260 265 270
 Glu Leu Phe Ser Arg Asn Gly Ser Asp Thr Ile Ser Ile Val Asn Ser
 275 280 285
 Phe Ala Asn Asn Gln Thr Leu Phe Phe Glu Asn Phe Val Ala Ser Met
 290 295 300

Ile Lys Met Gly Asn Ile Gly Val Leu Thr Gly Ser Gln Gly Glu Ile
305 310 315 320

Arg Thr Gln Cys Asn Ala Val Asn Gly Asn Ser Ser Gly Leu Ala Thr
325 330 335

Val Val Thr Lys Glu Ser Ser Glu Asp Gly Met Ala Ser Ser Phe
340 345 350